SOLUTIA
Solutions for a better life.

Solutia Inc.
575 Maryville Centre Drive
St. Louis, Missouri 63141

P.O. Box 66760
St. Louis, Missouri 63166-6760
Tel: 314-674-1000

October 10, 2003

Mr. Nabil S. Fayoumi
U. S. EPA - Region 5
77 West Jackson Boulevard (SR-6J)
Chicago, Illinois 60604-3590

Re: Sauget Area 2 Site – October 3, 2002 Unilateral Administrative Order (UAO)
Groundwater Operable Unit
 # 11 - Monthly Report; September 1 – September 30, 2003 Reporting Period

Dear Mr. Fayoumi,

Attached is the Monthly Report for the Sauget Area 2 Site October 3, 2002 Unilateral Administrative Order (UAO) - Groundwater Operable Unit. This submittal is in fulfillment of the monthly reporting requirements of the UAO, Section XII, paragraph 62, Progress Reports. This report is for the September 1 – September 30 reporting period.

Sincerely,
Solutia Inc.

Gary Vandiver
Project Coordinator
Solutia Inc.

cc: Bardo, Ken - U. S. EPA
Sandra Bron – IEPA
Richard Williams – Solutia
Cathleen Bumb – Solutia
Mayor Frank Bergman – Cahokia
Village of Sauget – c/o P. H. Weis & Associates (Attn: Brian Nelson)
Mayor P. Sauget - Sauget, IL
Mike Coffey - U. S. Fish & Wildlife Service
Linda Tape – Husch & Eppenberger

Sauget Area 2 Site - Sauget, Illinois

October 3, 2002 UAO – Groundwater Operable Unit

Monthly Report

Date of Report: October 10, 2003
Period Covered: September 1, 2003 - September 30, 2003

Agency Actions / Communications

In an e-mail message dated June 19, 2003, U. S. EPA requested the submission of revised versions of the Focused Feasibility Study, the Remedial Design Work Plan, and the Pre-Final (95%) Remedial Design. The revisions were required to allow the use of a slurry wall rather than jet grouting for construction of the barrier wall. The revised documents were submitted on July 3, 2003. The ESD was issued by US EPA on July 30, 2003.

Work Performed During the Reporting Period

Slurry Wall

Inquip started slurry wall construction with the large track hoe on September 4 at the southwest corner of the site. The soils in this area were found to be very soft and unable to support the weight of the excavation equipment. The large track hoe was moved about 1650 feet northward where soils are stronger and started excavation again on September 9. About 390 feet of trench excavation was completed by the end of the month to a maximum depth of 130 feet. Progress was slowed by mechanical problems with the clamshell equipment which excavates the deep trench from 80 feet down to 140 feet. The second clamshell was delayed in shipment and was not on site until the end of the month. Inquip is about 2 weeks behind schedule. An action plan is being developed to recover the lost time. The slurry wall profile as of September 30 is attached.

INQUIP is testing and monitoring fresh slurry and trench slurry properties throughout each day. Test results are recorded on daily field material testing logs. The trench profile is attached.

The best option to stabilize the clamshell crane and the slurry trench on the south side of the site in the area of soft soils was determined in conjunction with Inquip and their consultant Mueser Rutledge. The key part of the solution is to add a minimum of a 2 foot high working platform and raise the slurry level by ~3 feet. This will stabilize the trench. On the inside of the slurry wall (landfill side) wick drains will be installed to a depth of

about 35 feet on a ~ 4' x 5' pattern. The wick drains will drain the perched water from the soft soils and provide a firm foundation. The work platform was started on September 29 and the wick drains will be installed as soon as the contractor can be mobilized, most likely the week of October 7.

Groundwater Pilot Test

The report for the groundwater pilot test is being prepared by the Advent Group.

Groundwater Treatment

The Sauget Area 2 Groundwater Migration Control System pumped at 210 gpm for most of September due to slow ramp up allowed by American Bottoms. A 48 hour test at 1000 gpm with addition of powdered activated carbon (PAC) was run late in the month. After review of test data the flow rate was increased to 1000 gpm on a continuous basis on September 29. American Bottoms switched from lime neutralization to caustic on September 20 which minimizes sludge generation from the groundwater.

Effluent pumping data for each well is attached. The variation noted on the monthly flow charts is due to interference in the control system. URS, the O&M contractor for this system is working to resolve the problem.

Schedule

Inquip is currently about 2 weeks behind schedule on the slurry wall construction. A schedule recovery plan is being developed. To date two notification of delay letters have been submitted with a total delay of 6 working days. Those letters were submitted as follows:

September 8, 2003 - requested 5 day delay due to weather and soft soils.
September 17, 2003 - requested 1 day delay due to union work stoppage.

Work scheduled for next reporting period

Continue trenching activities for the slurry wall.

Install wick drains and continue constructing work platform.

Continue pumping and treating groundwater. Increase pumping rates when approved by ABRWTF.

STRATA SERVICES
P.O. Box 5039 St. Charles, MO 63302
(636) 398-5858 Mobile (314) 808-5858

STRATAGRAM

Date: 9-27-03
To: Ray Scherrer, URS
From: Dave Taylor
Subject: Grouting Report
Collector Well Abandonment
Solutia GMCS Site-R
Sauget, Illinois

9-22-03

Mobilized all required equipment, men and materials to project location. Arrival time 1130 hrs.

1130 Hrs. – 1430 Hrs.

Laid out locations for 3 grout holes. Holes located on North/South alignment across center of collector well on 3-foot intervals. South hole was numbered #1 grout hole. Center hole, located over approximate center of well bottom, was numbered #2 grout hole. North hole was numbered #3 grout hole. Drill tools were assembled and drill rig set up, ready to drill by 1430 hrs.

1430 Hrs. – 1630 Hrs.

Set up on South hole #1 and advanced 4-3/4" ø dual tube system vertically through alluvial gravel fill to total depth of 101.5 feet, apparent floor of well.

Grout Hole #1

00.00' – 15.95' Alluvial gravel fill
15.95' – 17.65' Concrete, steel grate and reinforcing steel
17.65' – 90.35' Alluvial gravel fill
90.35' – 90.75' Concrete and steel
90.75' – 101.00' Alluvial gravel and sand fill
101.00' – 101.50' Concrete floor

9-23-03

0700 Hrs. – 1330 Hrs.

Sleeved 5" ø wash over casing over 4-3/4" ø dual tube rod and advanced to floor of well. Extracted 4-3/4" ø dual tube rod. Set 101.5 feet 2" ø steel grout conductor tubing to floor of well and extracted 5" ø wash-over casing.

1330 Hrs. – 1700 Hrs.

Set up on center hole #2 and advanced 4-3/4" ø dual tube system through alluvial gravel fill to total depth of 101.5 feet with refusal on apparent floor of well.

Grout Hole #2

00.00' – 16.00' Alluvial gravel fill
16.00' – 18.35' Concrete, steel grate and reinforcing steel
18.35' – 90.50' Alluvial gravel fill
90.50' – 91.00' Concrete and steel
91.00' – 101.50' Alluvial gravel and sand fill
101.50 Concrete floor

9-24-03

0700 Hrs. - 0945 Hrs.

Sleeved 5" ø wash-over casing over 4-3/4" ø dual tube rod and advanced to floor of well. Extracted 4-3/4" ø dual tube rod. Set 101.5 feet 2" ø steel grout conductor tubing to floor of well and extracted 5" ø wash-over casing.

0945 Hrs. – 1630 Hrs.

Set up on North hole #3 and advanced 4-3/4" ø dual tube system through alluvial gravel fill to total depth of 94.75 feet. Hole was terminated at this depth due to refusal on steel, possible lateral valve.

Grout Hole #3

00.00' – 16.20' Alluvial gravel fill
16.20 – 18.20' Concrete, steel grate and reinforcing steel
18.20' – 93.00' Alluvial gravel fill
93.00' – 94.50' Concrete rubble or boulders
94.50' – 94.75' Refusal on steel

Sleeved 5" ø wash-over casing over 4-3/4" ø dual tube rod and advanced to floor of well. Extracted 4-3/4" ø dual tube rod. Set 95.0 feet 2" ø steel grout conductor tubing to steel obstruction and extracted 5" ø wash-over casing.

9-25-03

0700 Hrs. 1630 Hrs.

Obtained piezometric levels in monitoring wells and #3 grout conductor tubing.

Shallow well	32.7' FGL
Medium well	40.6' FGL
Deep well	40.0' FGL
#3 Grout pipe	39.7' FGL

At 0935 hours began injecting grout through grout conductor tubings as summarized below. Grout mix utilized was as specified in our proposal. Each ready mix truck contained a minimum of 162 cubic feet of grout slurry containing 7,990# Type I Portland cement, 3,188# Class "C" flyash, 100# Intrusion Aid (fluidifier expansion admix) and 765 gallons potable water. After load #5, the Intrusion Aid was deleted to decrease fluidity in view of apparent penetration in to open lateral interior.

Load #	Cubic Feet	Grout Hole#	Inject PSI	Observations
1	162 (162)	2	0	Raised Pz. level in Hole #3 to 39.0'
2	162 (327)	2	0	Pz. level in Hole #3/39.0'
3	162 (486)	1	0	Pz. level in Hole #3/38.0'

4	162 (648)	1	0	Pz. level in Hole #3/37.5'
5	162 (810)	3	0	Pz. level in Hole #2/37.5'

At this point, estimated quantity of 800 cf was injected. This quantity of grout should have been sufficient to raise piezometric level inside of well approximately 20 feet. It was apparent that significant penetration of grout into unforeseen open laterals was occurring. URS authorized continued injection of grout to seal open valves and connecting laterals.

6	162 (972)	3	0	Pz. level in Hole #2/36.0' +/-
7	162 (1,134)	3	0	Pz. level in Hole #2/35.0' +/-
8	162 (1,296)	3	0	Pz. level in Hole #2/32.0' +/-
9	162 (1,458)	3	0	Pz. level in Hole #2/28.0' +/-
10	162 (1,620)	3	0	Pz. level in Hole #2/30.0' +/-
11	162 (1,782)	3	0	Pz. level in Hole #2/30.0' +/-
12	162 (1,944)	3	0	Pz. level in Hole #2/30.0' +/-

Stopped grouting for the day.

Raised, cut and retreaded 2" ø grout conductor pipes to #1/88.5', #2/80.8' and #3/85.2'.

At 1500 hrs. took piezometric level in each grout hole #1/31.7', #2/31.6' and #3/31.4'.

Crew continued to work until 1630 loading tools and prepping for decon.

9-26-03

0700 Hrs. – 1200 Hrs.

After allowing grout to set overnight, URS authorized continued injection of grout to thoroughly seal the well as planned.

Overnight, piezometric levels receded to #1/38.7', #2/39.1' and #3/38.7'.

Grouting commenced in the morning utilizing the same grout mix, but without the expansive fluidifier admix.

Load #	Cubic Feet	Grout Hole#	Inject PSI	Observations
1	162 (2,106)	1	0-100	Pz. level in Hole #2 raised to 35.9'. Refusal @ 100 PSI
2	162 (2,268)	3	0	Pz. level in Hole #2 raised to 31.9'
3	162 (2,430)	3	0	Pz. level in Hole #2 raised to 26.2'
4	162 (2,592)	3	0	Pz. level in Hole #2 raised to 23.2'
5	162 (2,754)	3	0	Pz. level in Hole #2 raised to 20.9'
6	162 (2,916)	3	0	Pz. level in Hole #2 raised to 16.0'

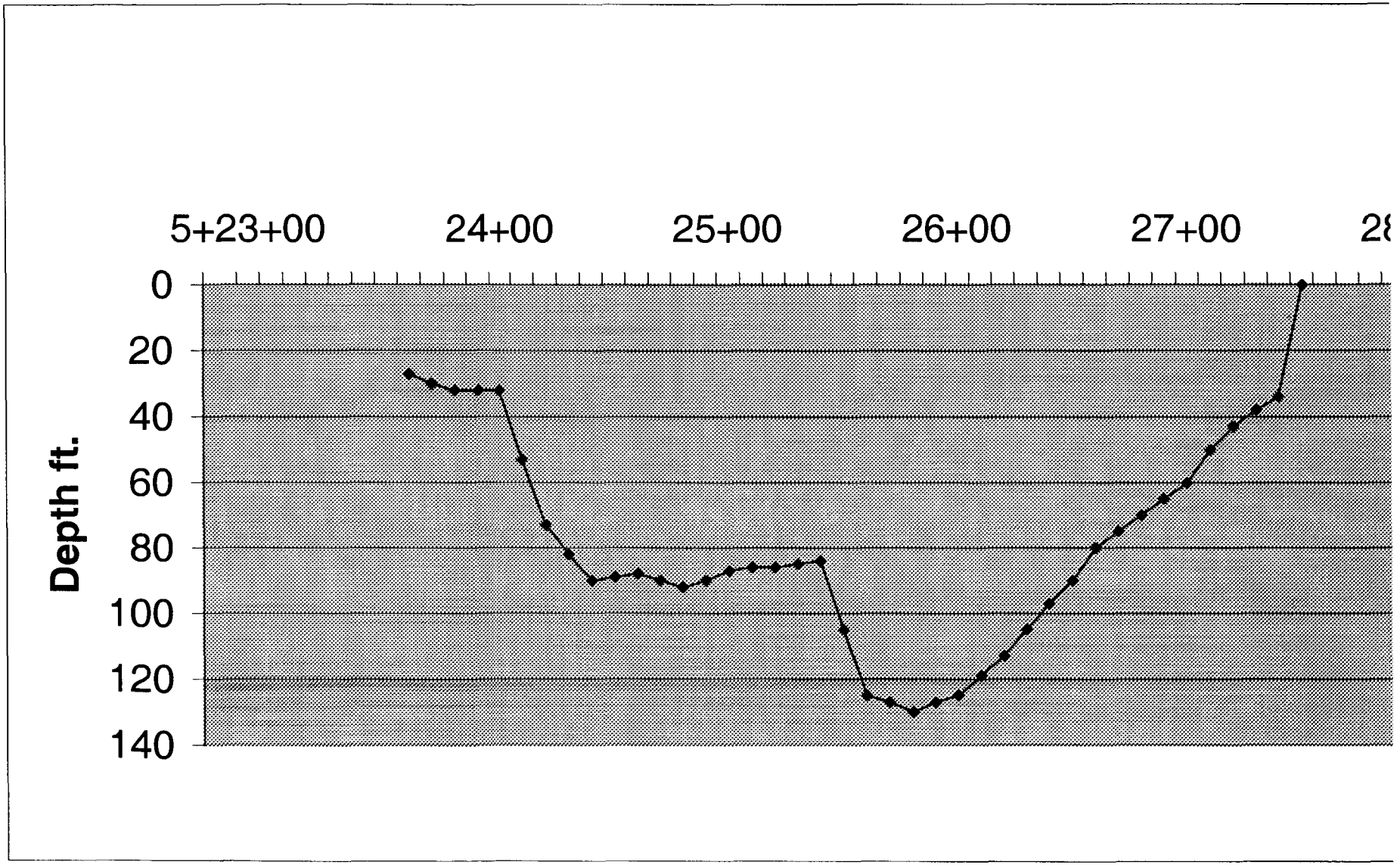
In conclusion, a total of 2,916 cubic feet of grout slurry was injected through the three 2" ø grout conductor tubings into the gravel fill within the lower twenty feet of the collector well. Based on our observations, the initial primary grout pour of 1,944 cubic feet appears to have penetrated the bottom approximate 5 to 10 feet of the gravel fill and subsequently flowed into open laterals. 1,600 to 1,800 cubic feet of the primary pour may have been required to fill and seal unanticipated open laterals. Piezometric levels within the well on the second day of grouting, raised consistently from 39.1' up to 16.0' at completion indicating an approximate 23' total rise.

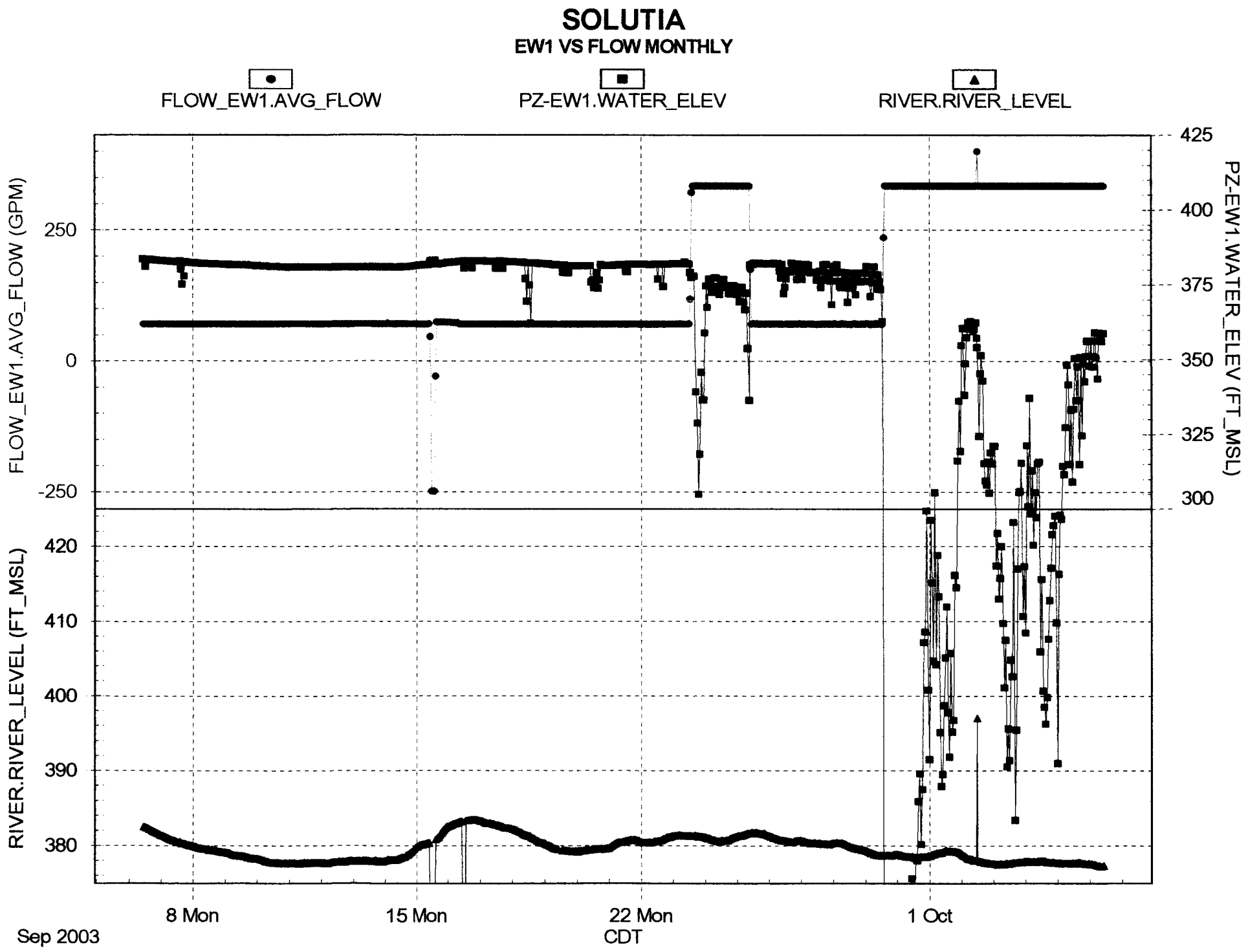
9-29-03

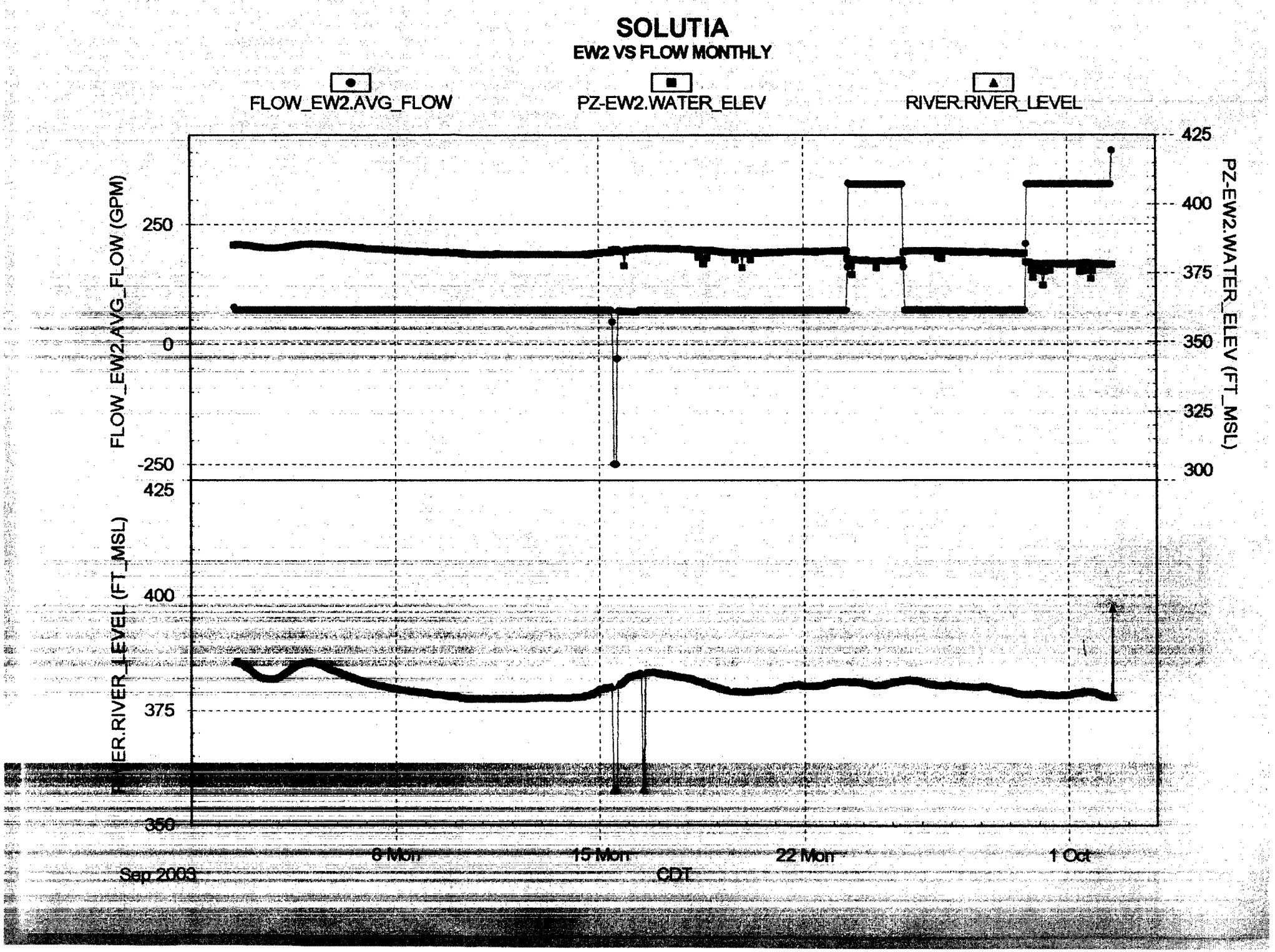
U.R.S. soundings of the grout conductor tubings three days after completion show grout levels at #1/26.5', #2/62.8' and #3/42.8.

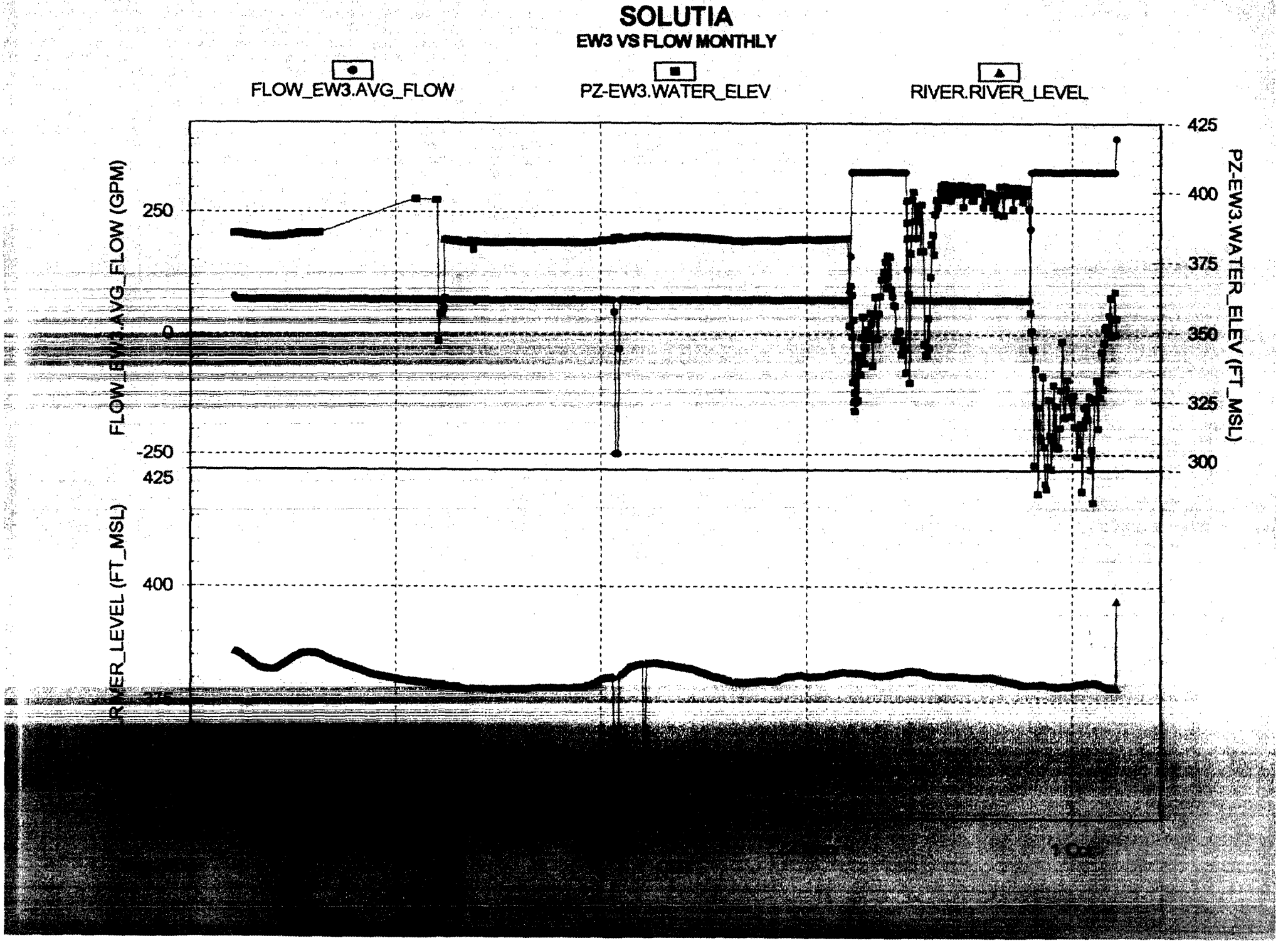
Based on these observations, it appears the interstitial void space within the gravel fill has been thoroughly penetrated and filled with grout from the bottom of the well up approximately 20 feet or more as originally planned.

Thank you for allowing **Strata Services** the opportunity to assist with your special application grouting projects.


5+23+00
24+00
25+00
26+00
27+00
0
20
40
60
80
100
120
140
Depth ft.


SOLUTIA
EW1 VS FLOW MONTHLY
FLOW_EW1.AVG_FLOW
PZ-EW1.WATER_ELEV
RIVER.RIVER_LEVEL
FLOW_EW1.AVG_FLOW (GPM)
250
0
-250
PZ-EW1.WATER_ELEV (FT_MSL)
425
400
375
350
325
300
RIVER.RIVER_LEVEL (FT_MSL)
420
410
400
390
380
8 Mon
15 Mon
22 Mon
1 Oct
Sep 2003
CDT


SOLUTIA
EW2 VS FLOW MONTHLY
FLOW_EW2.AVG_FLOW
PZ-EW2.WATER_ELEV
RIVER.RIVER_LEVEL
FLOW_EW2.AVG_FLOW (GPM)
250
0
-250
PZ-EW2.WATER_ELEV (FT_MSL)
425
400
375
350
325
300
RIVER.RIVER_LEVEL (FT_MSL)
425
400
375
350
8 Mon
15 Mon
22 Mon
1 Oct
Sep 2003
CDT


SOLUTIA
EW3 VS FLOW MONTHLY
FLOW_EW3.AVG_FLOW
PZ-EW3.WATER_ELEV
RIVER.RIVER_LEVEL
FLOW_EW3.AVG_FLOW (GPM)
250
0
-250
425
400
RIVER_LEVEL (FT_MSL)
425
400
375
350
325
300
PZ-EW3.WATER_ELEV (FT_MSL)

Value History for FLOW_EW1.DAILY_TOTAL

Date/Time Stamp	Value	Units
10/02/2003 12:00:00 AM	479561.8	GAL
10/01/2003 12:00:00 AM	479556.7	GAL
09/30/2003 12:00:00 AM	268440.9	GAL
09/29/2003 12:00:00 AM	100687.6	GAL
09/28/2003 12:00:00 AM	100731.5	GAL
09/27/2003 12:00:00 AM	100852.6	GAL
09/26/2003 12:00:00 AM	249317.9	GAL
09/25/2003 12:00:00 AM	479494.6	GAL
09/24/2003 12:00:00 AM	276372.4	GAL
09/23/2003 12:00:00 AM	100145.2	GAL
09/22/2003 12:00:00 AM	100229.9	GAL
09/21/2003 12:00:00 AM	99806.7	GAL
09/20/2003 12:00:00 AM	99860.8	GAL
09/19/2003 12:00:00 AM	99964.0	GAL
09/18/2003 12:00:00 AM	100001.5	GAL
09/17/2003 12:00:00 AM	101344.1	GAL
09/16/2003 12:00:00 AM	37161.5	GAL
09/15/2003 12:00:00 AM	100272.3	GAL
09/14/2003 12:00:00 AM	100216.7	GAL
09/13/2003 12:00:00 AM	99996.4	GAL
09/12/2003 12:00:00 AM	100263.2	GAL
09/11/2003 12:00:00 AM	100343.7	GAL
09/10/2003 12:00:00 AM	99856.1	GAL
09/09/2003 12:00:00 AM	99919.8	GAL
09/08/2003 12:00:00 AM	99785.8	GAL
09/07/2003 12:00:00 AM	99970.6	GAL
09/06/2003 12:00:00 AM	99948.2	GAL
09/05/2003 12:00:00 AM	99841.2	GAL
09/04/2003 12:00:00 AM	99742.6	GAL
09/03/2003 12:00:00 AM	105767.9	GAL
09/02/2003 12:00:00 AM	109034.3	GAL
09/01/2003 12:00:00 AM	106724.5	GAL

Value History for FLOW_EW2.DAILY_TOTAL

Date/Time Stamp	Value	Units
10/02/2003 12:00:00 AM	479561.7	GAL
10/01/2003 12:00:00 AM	479597.9	GAL
09/30/2003 12:00:00 AM	266906.0	GAL
09/29/2003 12:00:00 AM	100719.0	GAL
09/28/2003 12:00:00 AM	100768.9	GAL
09/27/2003 12:00:00 AM	100757.3	GAL
09/26/2003 12:00:00 AM	248343.7	GAL
09/25/2003 12:00:00 AM	479480.3	GAL
09/24/2003 12:00:00 AM	295647.0	GAL
09/23/2003 12:00:00 AM	100798.3	GAL
09/22/2003 12:00:00 AM	100806.5	GAL
09/21/2003 12:00:00 AM	100801.6	GAL
09/20/2003 12:00:00 AM	100799.7	GAL
09/19/2003 12:00:00 AM	100825.5	GAL
09/18/2003 12:00:00 AM	100801.7	GAL
09/17/2003 12:00:00 AM	99298.5	GAL
09/16/2003 12:00:00 AM	34444.8	GAL
09/15/2003 12:00:00 AM	100833.1	GAL
09/14/2003 12:00:00 AM	100792.6	GAL
09/13/2003 12:00:00 AM	100802.3	GAL
09/12/2003 12:00:00 AM	100802.9	GAL
09/11/2003 12:00:00 AM	100801.0	GAL
09/10/2003 12:00:00 AM	100793.8	GAL
09/09/2003 12:00:00 AM	100787.7	GAL
09/08/2003 12:00:00 AM	100787.9	GAL
09/07/2003 12:00:00 AM	100828.0	GAL
09/06/2003 12:00:00 AM	100798.6	GAL
09/05/2003 12:00:00 AM	100798.8	GAL
09/04/2003 12:00:00 AM	100808.8	GAL
09/03/2003 12:00:00 AM	105485.4	GAL
09/02/2003 12:00:00 AM	109535.7	GAL
09/01/2003 12:00:00 AM	107331.5	GAL

Value History for FLOW_EW3.DAILY_TOTAL

Date/Time Stamp	Value	Units
10/02/2003 12:00:00 AM	479391.5	GAL
10/01/2003 12:00:00 AM	479424.6	GAL
09/30/2003 12:00:00 AM	267299.5	GAL
09/29/2003 12:00:00 AM	100772.3	GAL
09/28/2003 12:00:00 AM	100742.6	GAL
09/27/2003 12:00:00 AM	100812.2	GAL
09/26/2003 12:00:00 AM	246634.5	GAL
09/25/2003 12:00:00 AM	479374.3	GAL
09/24/2003 12:00:00 AM	296262.4	GAL
09/23/2003 12:00:00 AM	100706.5	GAL
09/22/2003 12:00:00 AM	100682.3	GAL
09/21/2003 12:00:00 AM	100752.3	GAL
09/20/2003 12:00:00 AM	100686.8	GAL
09/19/2003 12:00:00 AM	100803.2	GAL
09/18/2003 12:00:00 AM	100660.5	GAL
09/17/2003 12:00:00 AM	100018.1	GAL
09/16/2003 12:00:00 AM	35862.3	GAL
09/15/2003 12:00:00 AM	100915.8	GAL
09/14/2003 12:00:00 AM	100728.6	GAL
09/13/2003 12:00:00 AM	100655.5	GAL
09/12/2003 12:00:00 AM	100697.0	GAL
09/11/2003 12:00:00 AM	100500.5	GAL
09/10/2003 12:00:00 AM	99318.2	GAL
09/09/2003 12:00:00 AM	100806.2	GAL
09/08/2003 12:00:00 AM	100732.6	GAL
09/07/2003 12:00:00 AM	100802.9	GAL
09/06/2003 12:00:00 AM	100751.7	GAL
09/05/2003 12:00:00 AM	100831.0	GAL
09/04/2003 12:00:00 AM	100756.5	GAL
09/03/2003 12:00:00 AM	106310.6	GAL
09/02/2003 12:00:00 AM	108306.9	GAL
09/01/2003 12:00:00 AM	102021.5	GAL

Value History for DAILY_FLOW.SUM_TOTAL

Date/Time Stamp	Value	Units
10/02/2003 12:10:00 AM	1438515	GAL
10/01/2003 12:10:00 AM	1438579	GAL
09/30/2003 12:10:01 AM	802646	GAL
09/29/2003 12:10:00 AM	302179	GAL
09/28/2003 12:10:00 AM	302243	GAL
09/27/2003 12:10:01 AM	302422	GAL
09/26/2003 12:10:01 AM	744296	GAL
09/25/2003 12:10:00 AM	1438349	GAL
09/24/2003 12:10:00 AM	868282	GAL
09/23/2003 12:10:00 AM	301650	GAL
09/22/2003 12:10:00 AM	301719	GAL
09/21/2003 12:10:01 AM	301361	GAL
09/20/2003 12:10:00 AM	301347	GAL
09/19/2003 12:10:00 AM	301593	GAL
09/18/2003 12:10:00 AM	301464	GAL
09/17/2003 12:10:00 AM	300661	GAL
09/16/2003 12:10:00 AM	107469	GAL
09/15/2003 12:10:01 AM	302021	GAL
09/14/2003 12:10:01 AM	301738	GAL
09/13/2003 12:10:00 AM	301454	GAL
09/12/2003 12:10:00 AM	301763	GAL
09/11/2003 12:10:00 AM	301645	GAL
09/10/2003 12:10:00 AM	299968	GAL
09/09/2003 12:10:00 AM	301514	GAL
09/08/2003 12:10:01 AM	301306	GAL
09/07/2003 12:10:00 AM	301601	GAL
09/06/2003 12:10:01 AM	301498	GAL
09/05/2003 12:10:00 AM	301471	GAL
09/04/2003 12:10:00 AM	301308	GAL
09/03/2003 12:10:01 AM	317564	GAL
09/02/2003 12:10:00 AM	326877	GAL
09/01/2003 12:10:00 AM	316078	GAL